



Integrated design...

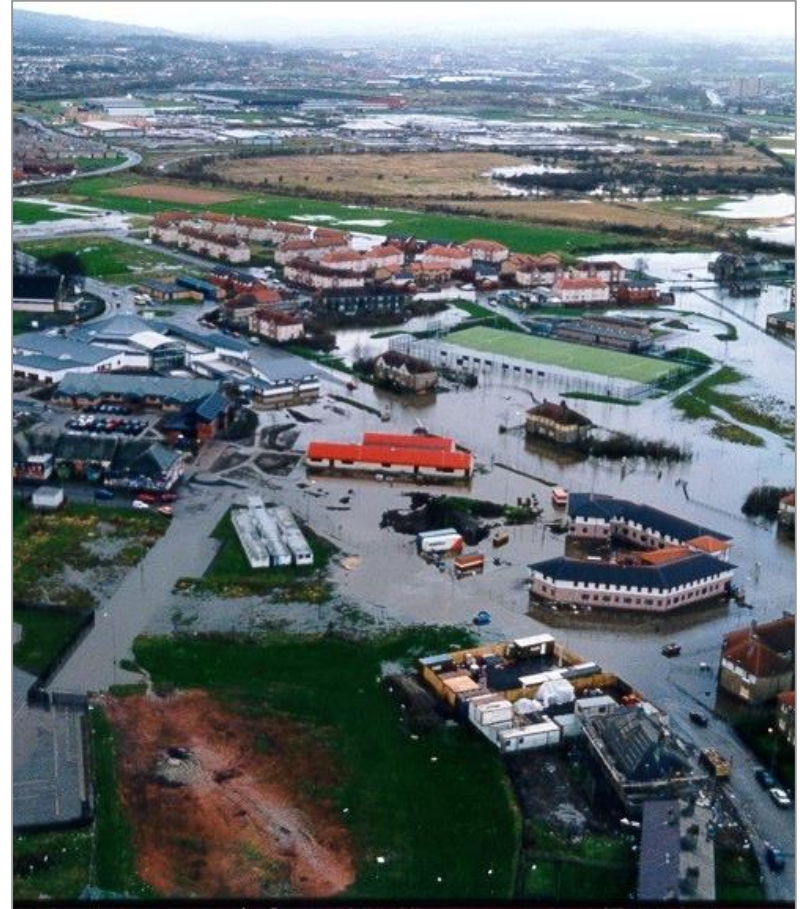
....SuDS in new housing estates

CIRIA
September 2019

The problem is everywhere

WE ALL UNDERSTAND THE PROBLEMS

- Climate change - more extreme and prolonged rainfall events
- Towns and cities historically located on rivers
- Groundwater
- Coastal flooding
- Effect of land management and overland flows from agricultural land
- Urban creep and upstream development
- Combined sewers have limited capacity
- 1 in 5 homes and businesses at risk
- Huge financial and social cost of flood damage and reinstatement



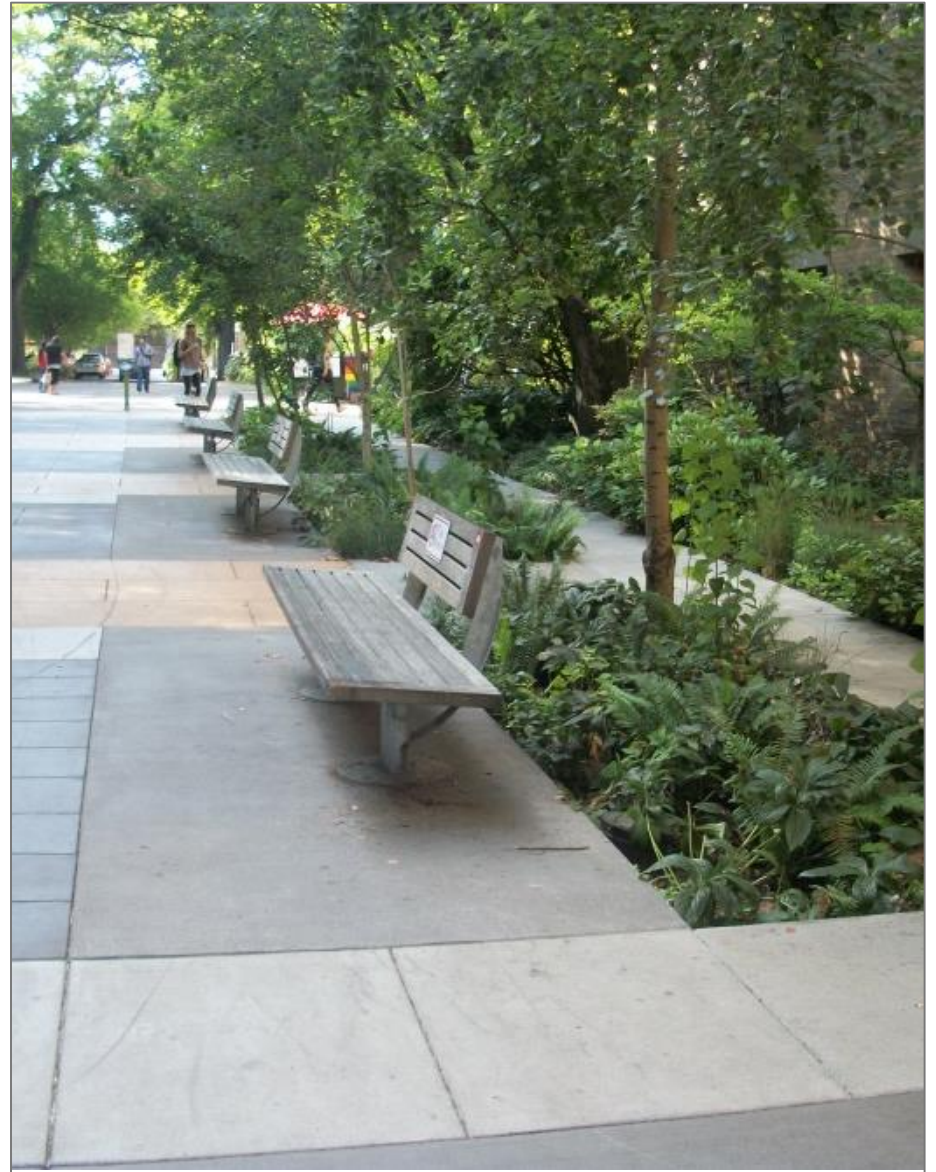
Managing water in our cities, towns and villages

- Good planning policies to support local needs
- Flood alleviation
- Flood protection
- Realignment/routing through the urban environment
- Reconsidering land planning within urban space
- Managing surface water from all new development and redevelopment
- Comprehensive retrofitting of SuDS
- Property level resilience



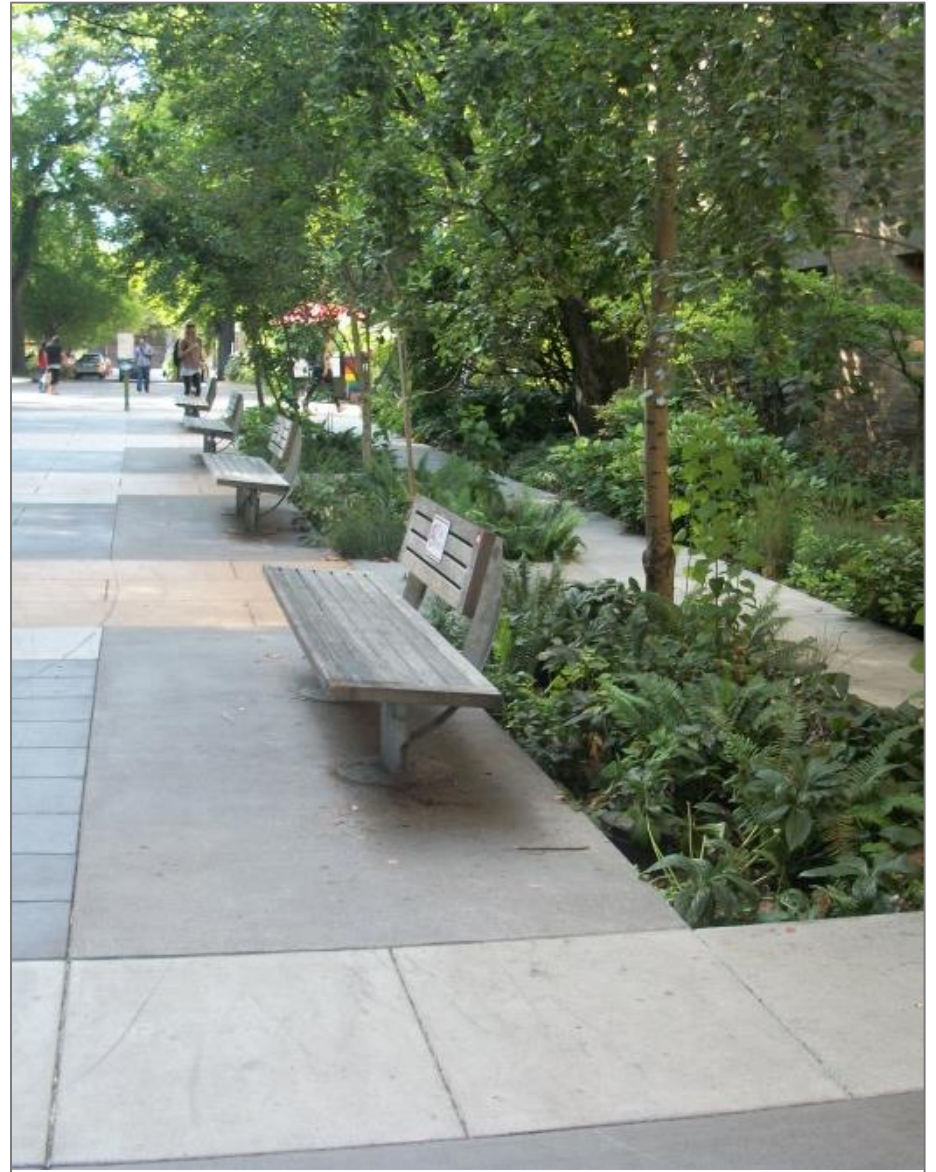
So how do we deliver it?

- COLLABORATION



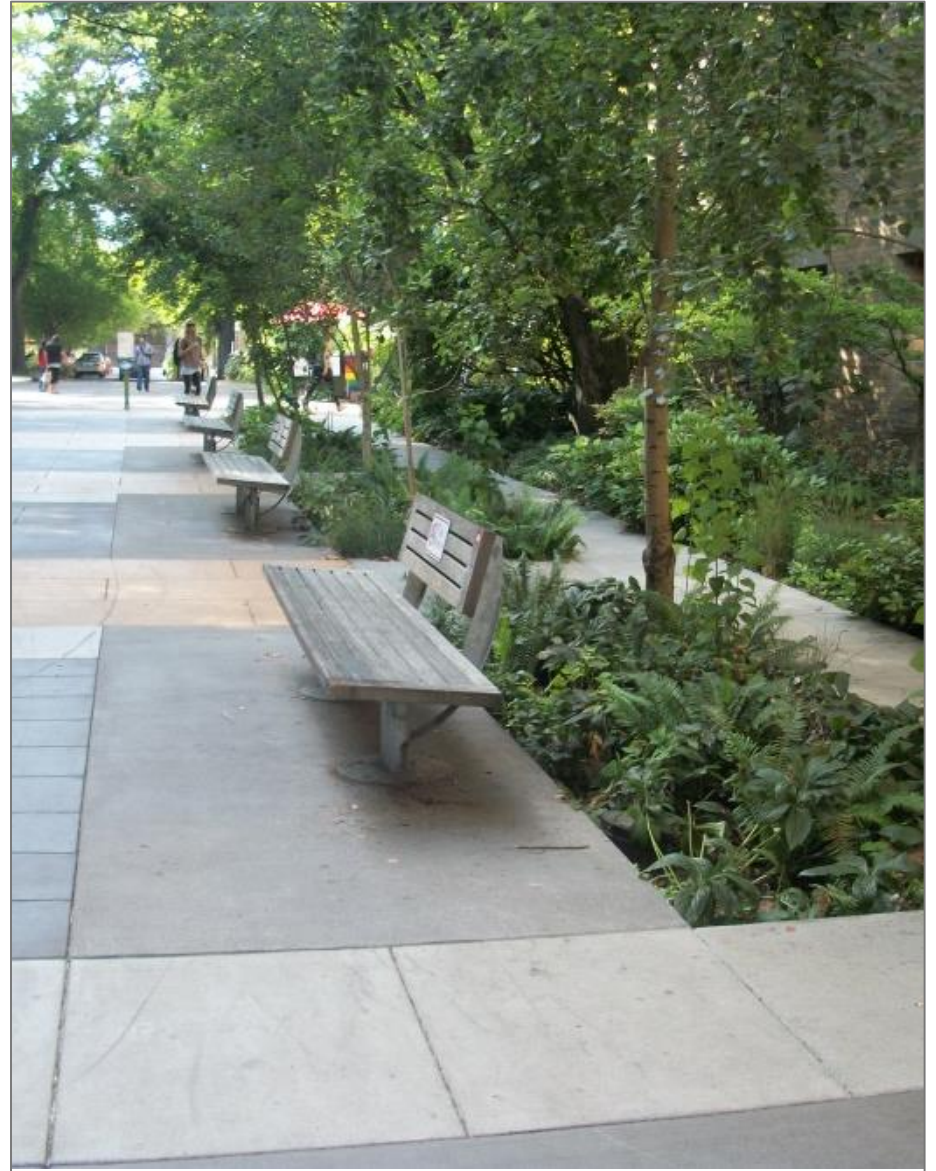
So how do we deliver it?

- COLLABORATION
- COMMUNICATION



So how do we deliver it?

- COLLABORATION
- COMMUNICATION
- **By selling the benefits!**



How to sell the (financial) benefits

What can it deliver?

- Houses easier to sell
- Sell for higher prices
- Satisfies multiple planning requirements
- Makes Biodiversity Net Gain easier to achieve
- Delivering multiple benefits is cost effective (and generally cheaper)
- Efficient use of land
- More attractive
- Modifies the environment: excess heat and rainfall



Delivering multi-functional SuDS through design

The benefits it can deliver

- Attractive healthy places
- Relevant to locality
- Inherent resilience
- Reuses rainwater effectively
- Enhances water quality
- Supports the aquatic environment
- Creates new habitats and networks
- Healthier environments

... places for people and wildlife to flourish

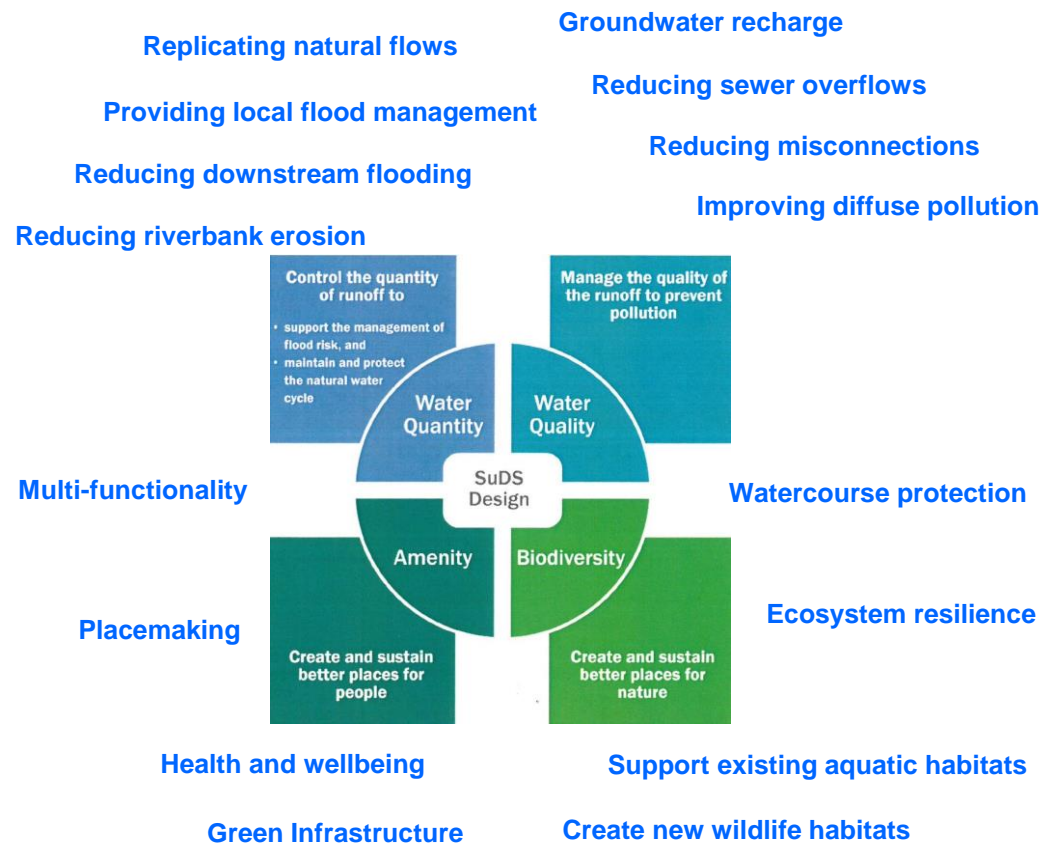


Image courtesy of CIRIA



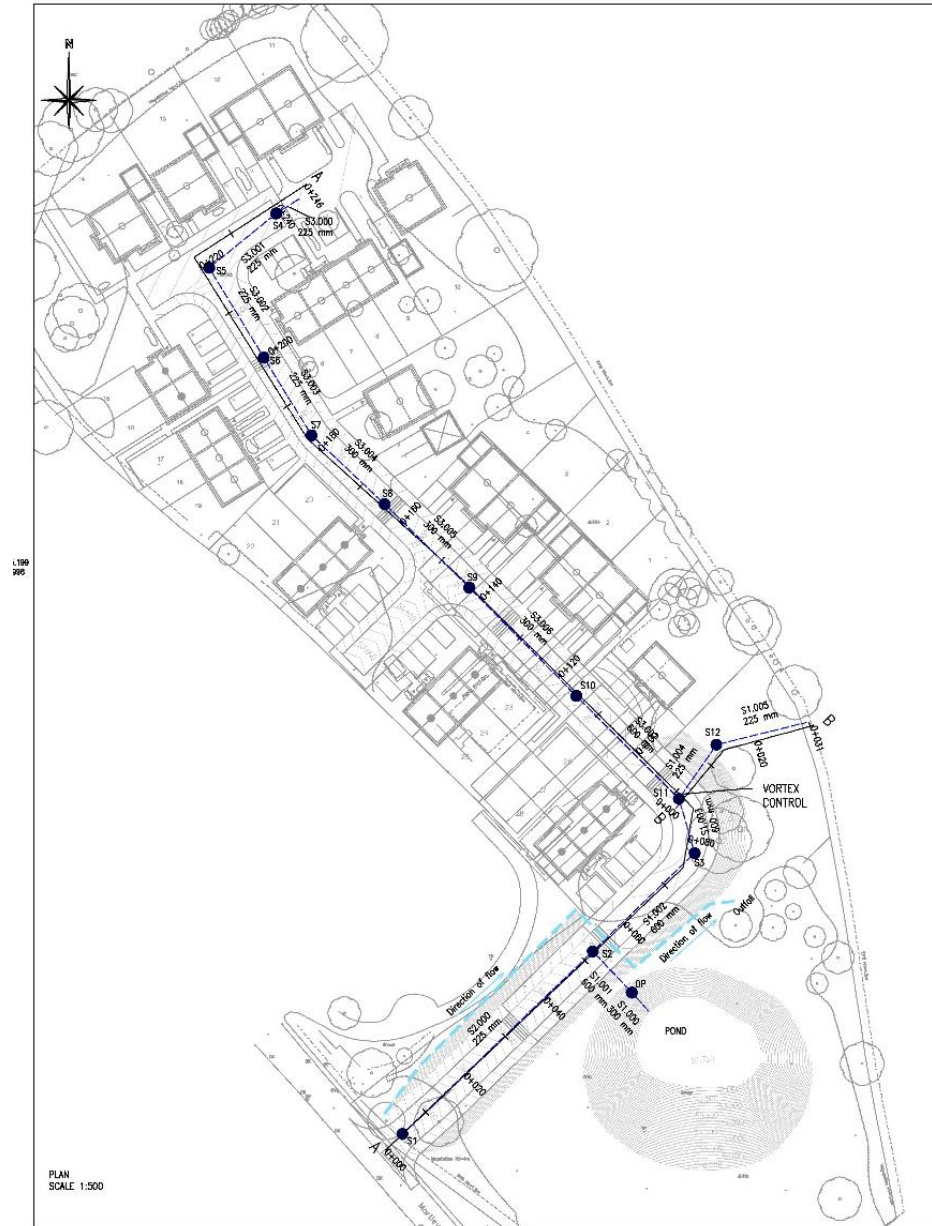




Revision the land – urban retrofitting



The bad



and the ugly



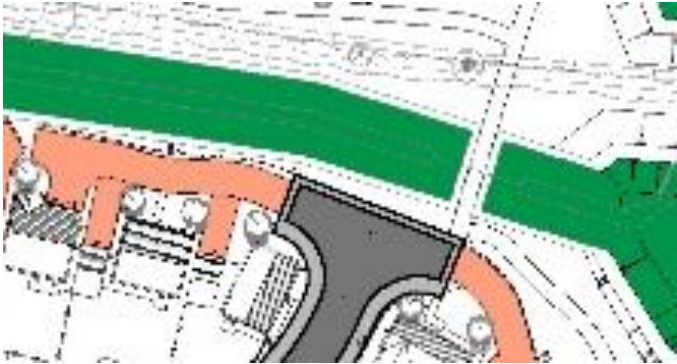
But still not there...



Better integrated



The need for detail



Delivering Blue and Green (and places for people)



What do we need to consider?

THE BASELINE ISSUES

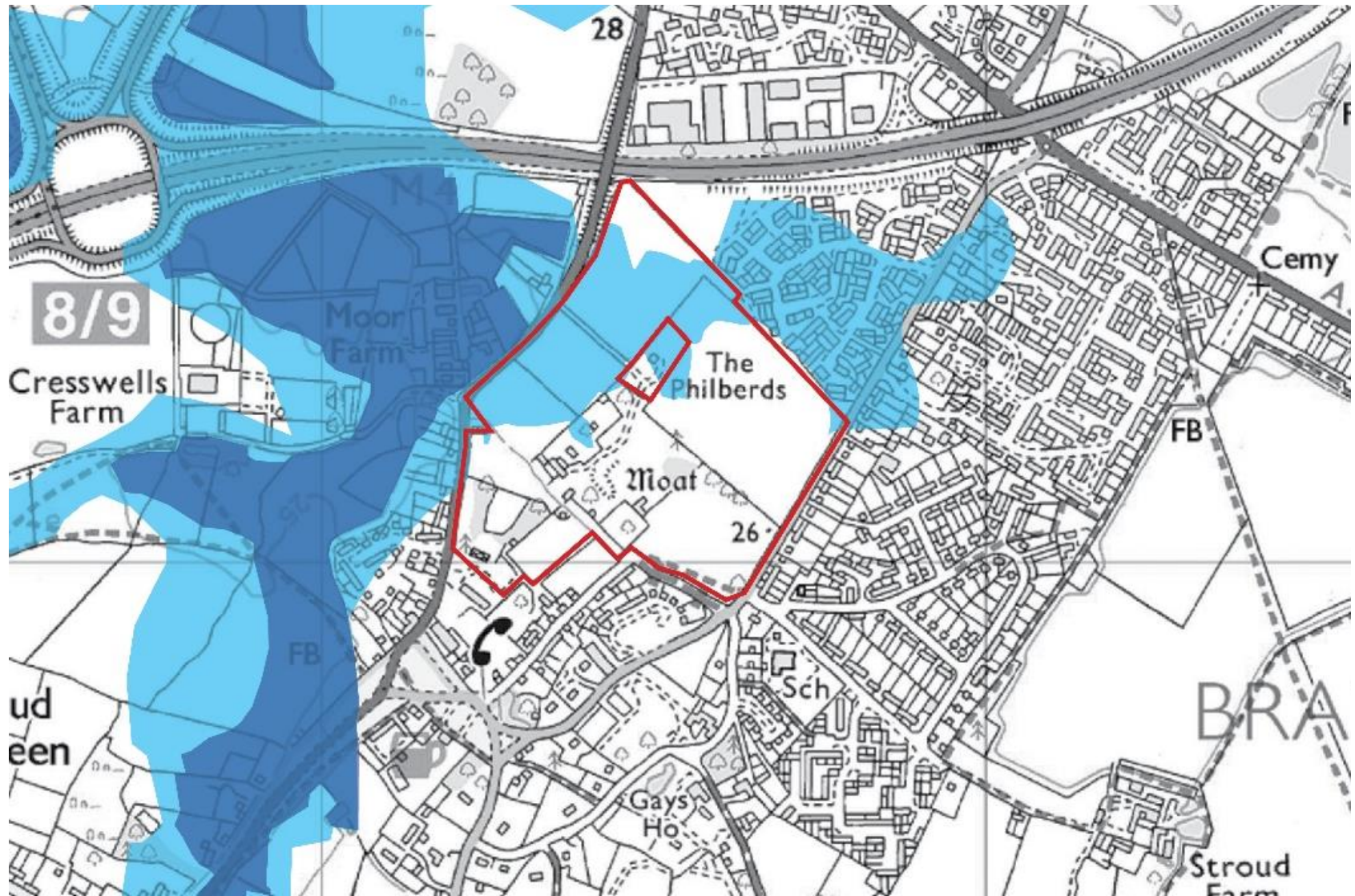
- Does it flood and where does the water flow?
- How does water discharge?
- Topography
- Local landscape character
- Historic context
- Visual issues arising from development
- Tree resource
- Ecological resource

WHAT MAKES IT LIVEABLE

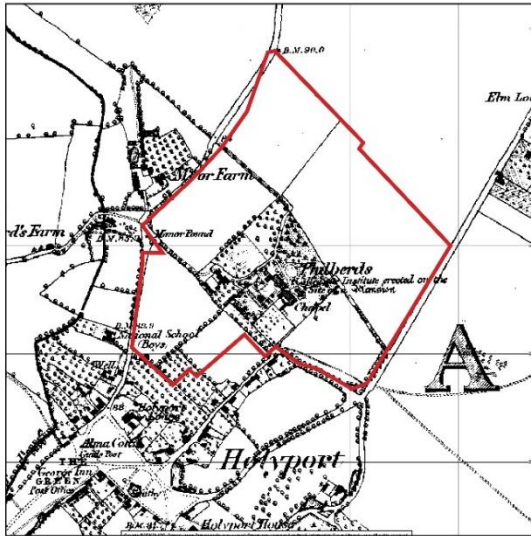
- Placemaking
- An attractive environment
- Access and connections
- Play and public open space



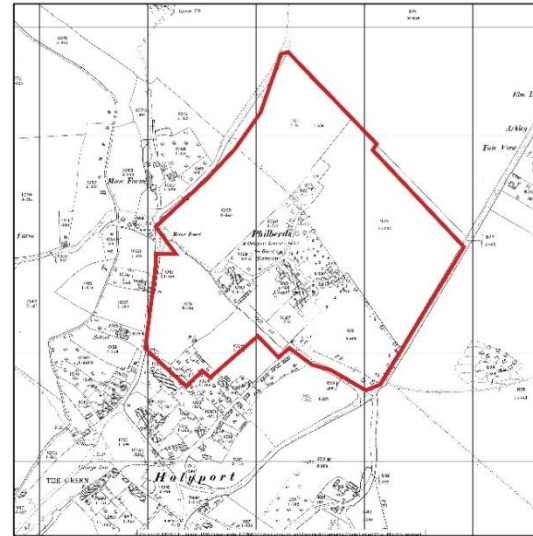
Flood zones 2 and 3



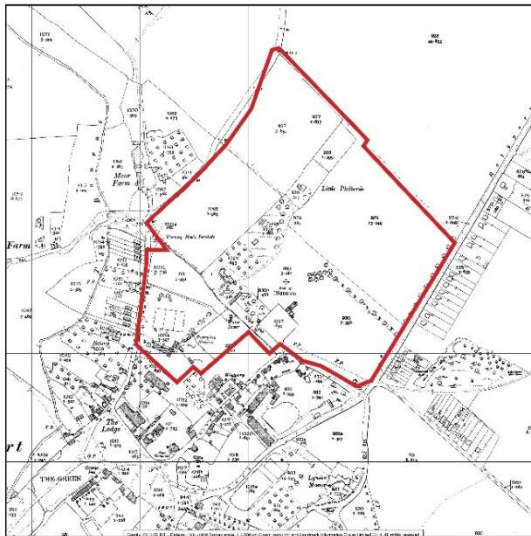
Historic context



1881



1899

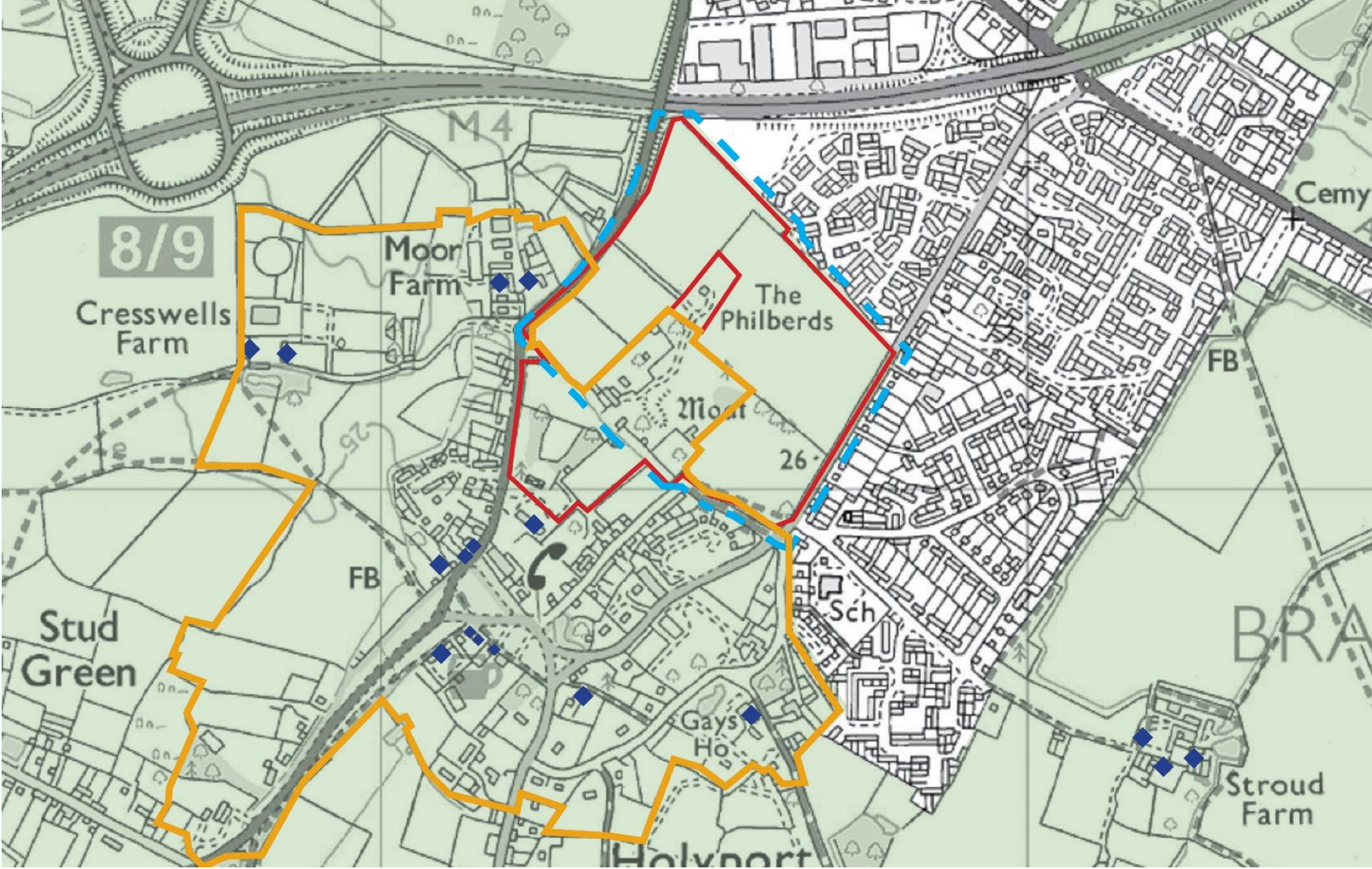


1931



1973

Planning designations



Consideration of key views into the site

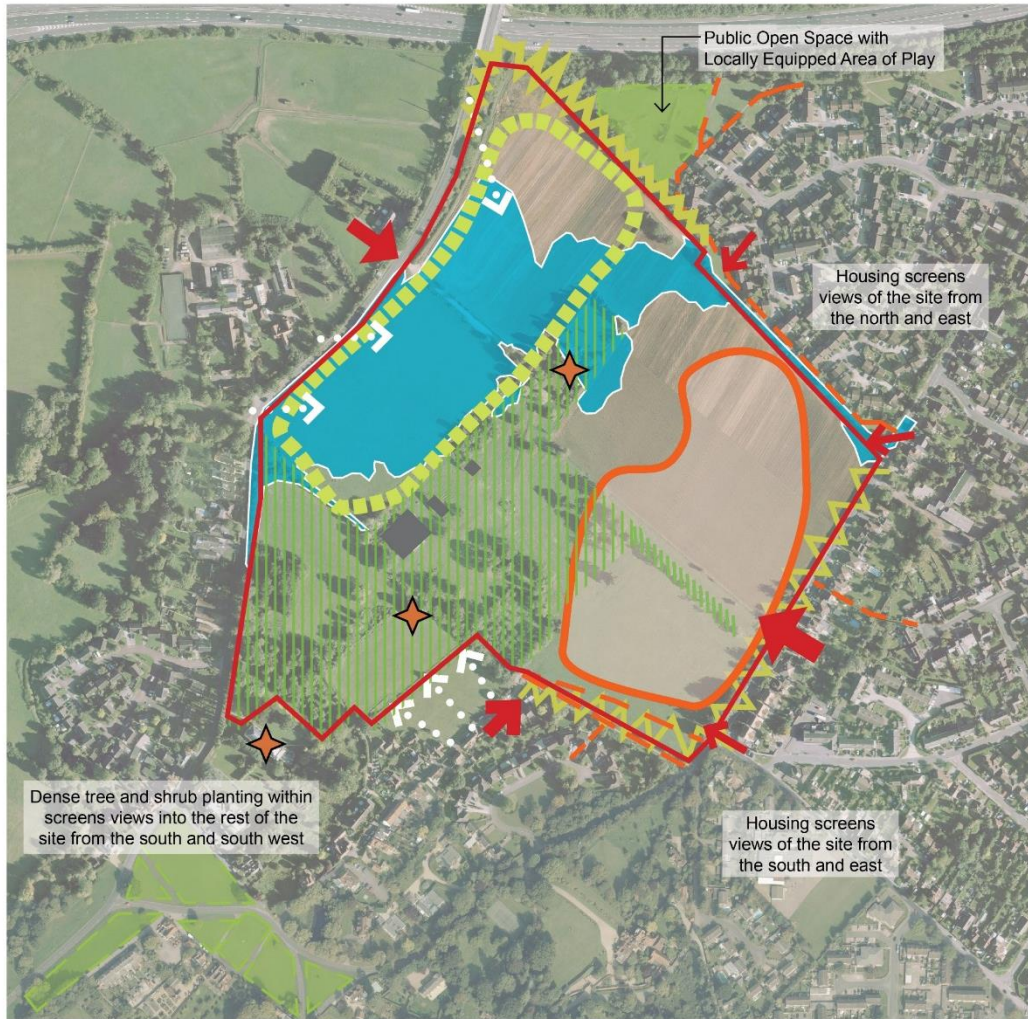


... and local landscape character

Tree survey



How these factors influence the spatial design



KEY:

-  SITE LOCATION
-  NOTABLE BUILDINGS
To be retained
-  EXISTING FOOTPATHS
To be retained
-  EXISTING PUBLIC OPEN SPACE
Not affected by development
-  AREA OF MATURE TREES AND REMNANT HEDGEROW TREES -
Creates visual divide between the NW and SE portions of the site and definition between field boundaries
-  EXISTING AGRICULTURAL BUILDINGS
Potential for redevelopment
-  VEGETATED BOUNDARIES
Screens views into site from surrounding areas
-  EXISTING VIEWS INTO SITE RETAIN CHARACTER
-  POTENTIAL ACCESS POINTS
Promote pedestrian links into and across site
-  AREA SUITABLE FOR DEVELOPMENT
-  EXISTING OPEN FIELDS
Retain 'Green Entrance' into Holyport
-  FLOOD ZONE
No built form within this area

Defining the developable area



Access and movement



Development concept



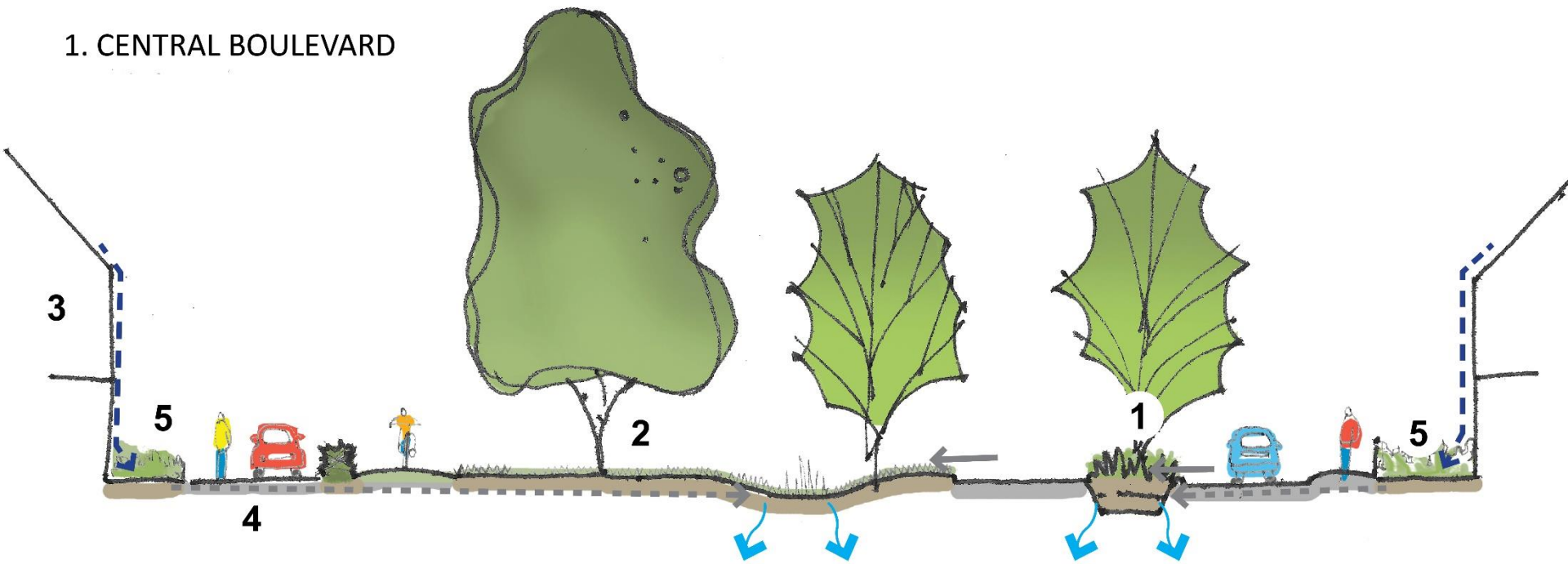
Concept of street typologies



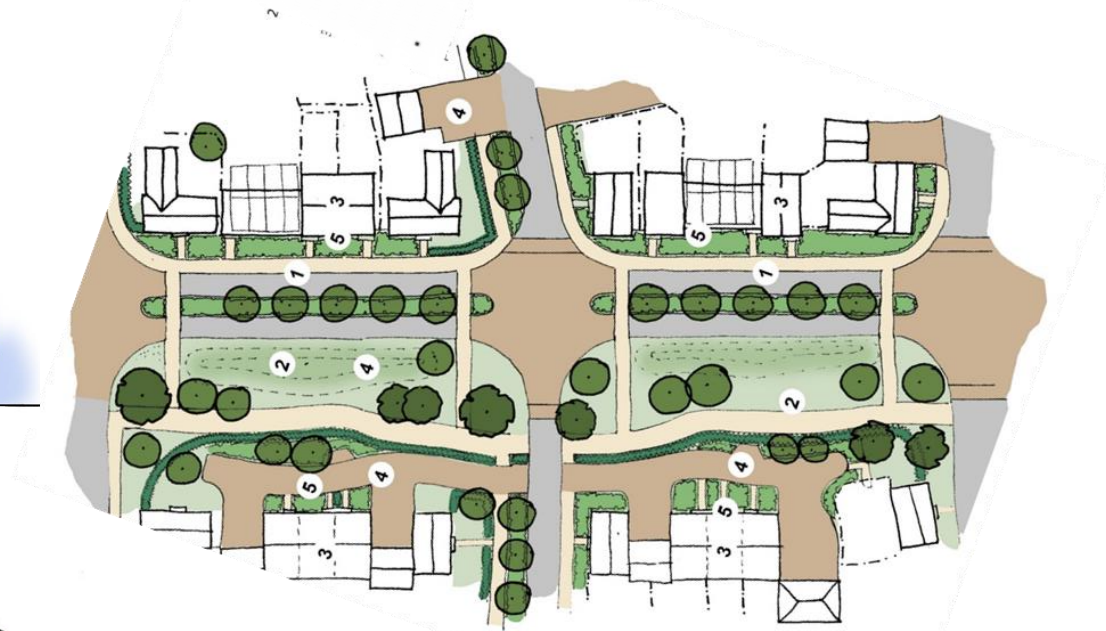
Making space for water



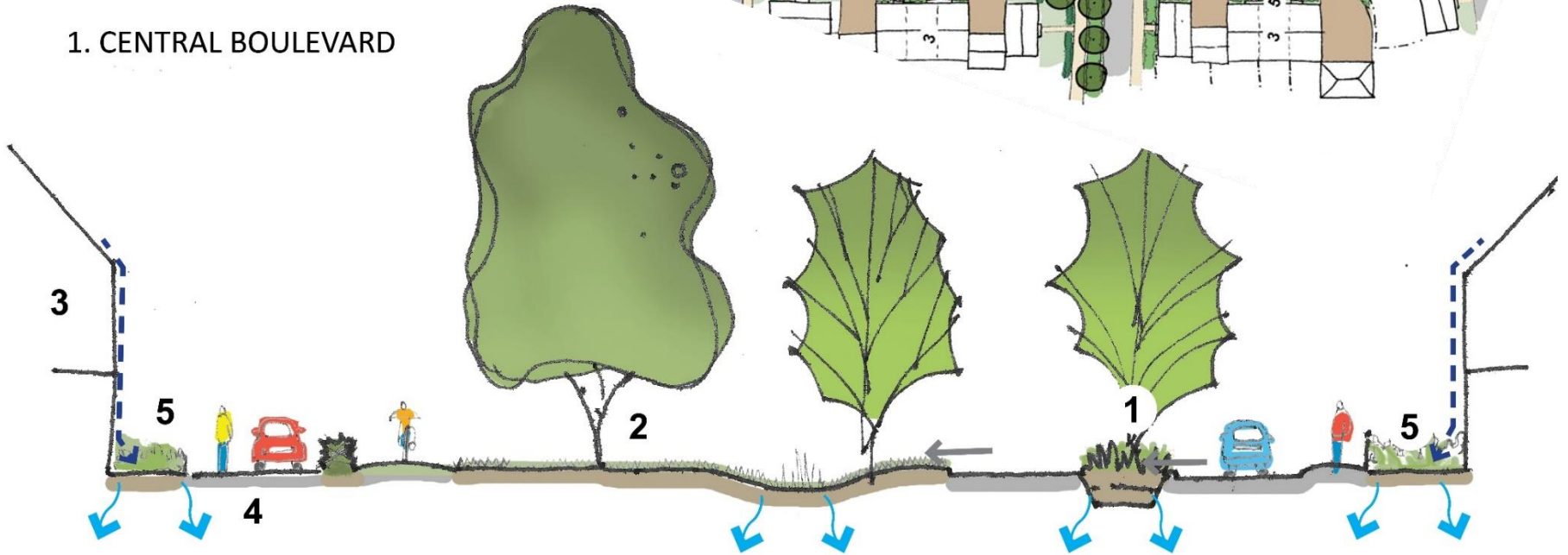
1. CENTRAL BOULEVARD



1. Proposed central boulevard, wide planting beds with avenue tree planting create attractive streets as part of SuDs system dealing with run-off from road
2. Wide green verges to road side incorporating existing trees and 3m footpath / cycleway
3. Dwellings max 2 storey – mix of sizes / tenures incorporating household level SuDS features
4. Permeable paved private drives and access to properties
5. Planting to housing frontages to provide privacy buffer to dwellings

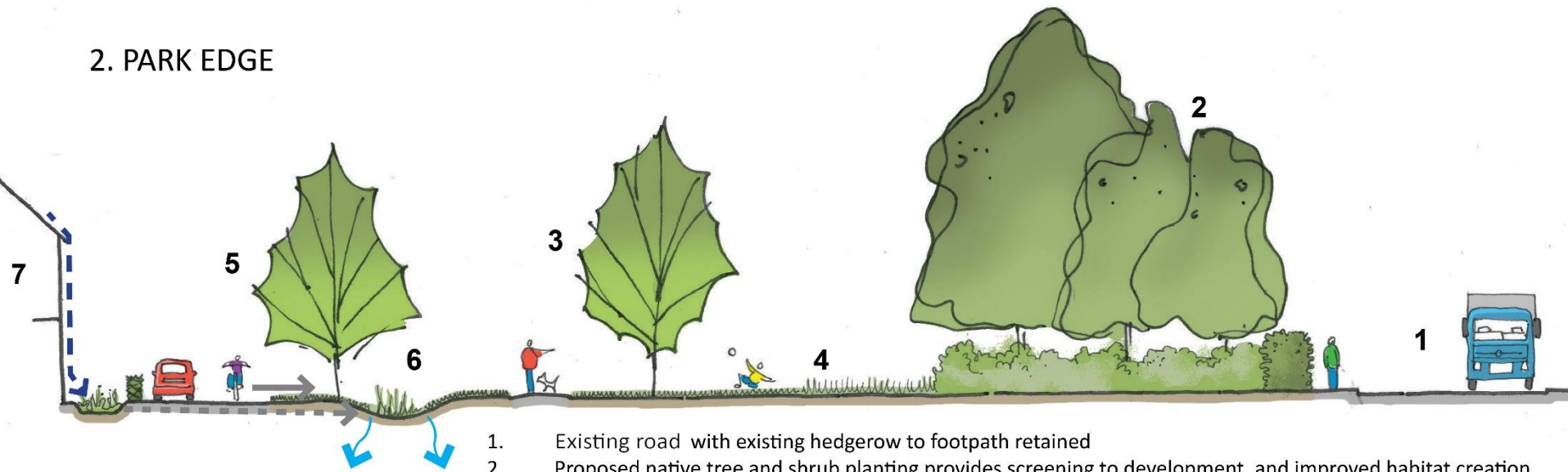


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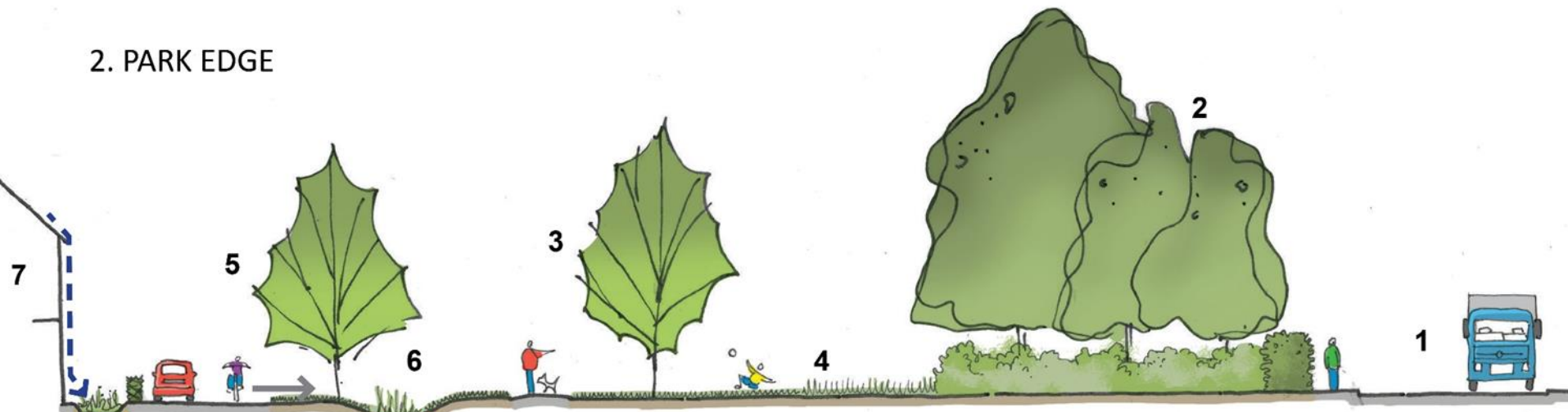
2. PARK EDGE



1. Existing road with existing hedgerow to footpath retained
2. Proposed native tree and shrub planting provides screening to development, and improved habitat creation
3. Proposed footpath networks, with connections into existing Public Rights of Way
4. Open grass areas for informal recreation
5. Proposed street network
6. Proposed swale – shallow grassed depression to deal with storm water run-off from road
7. Proposed Dwellings - max 2 Storey incorporating household level SuDS features (permeable paving to drives, rain gardens / soak aways)

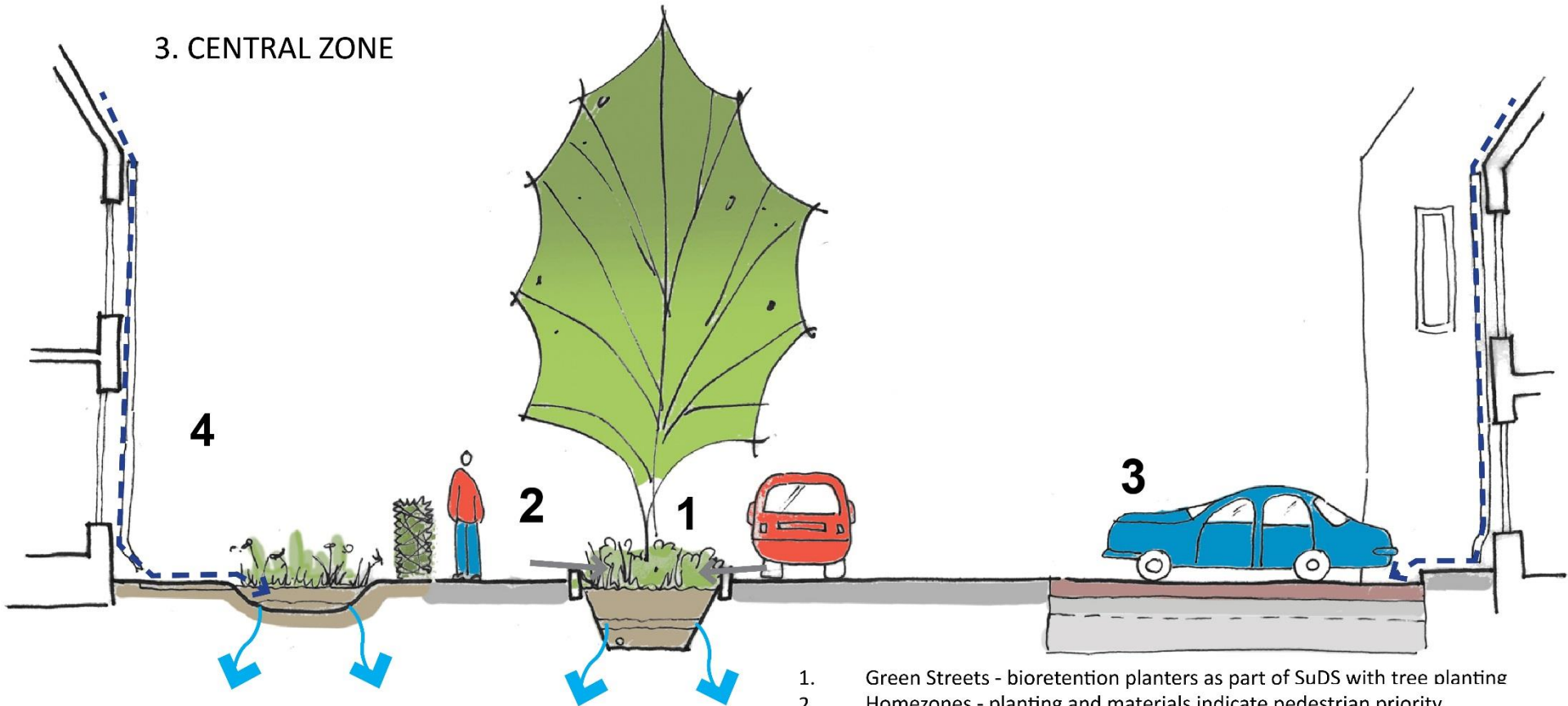


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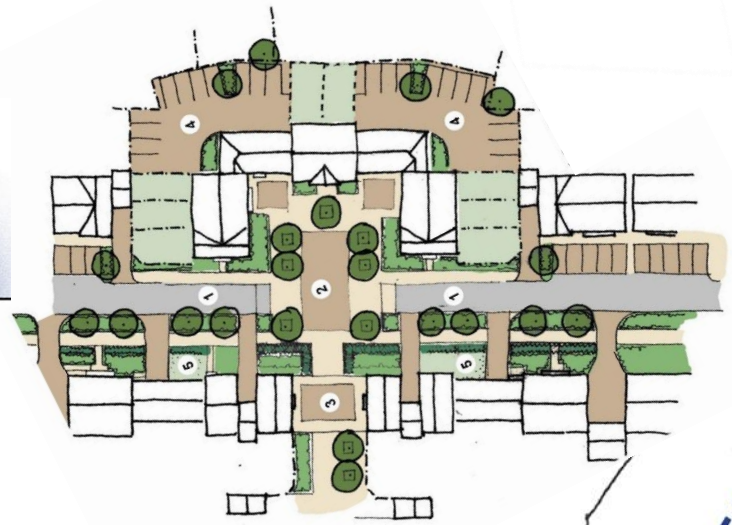


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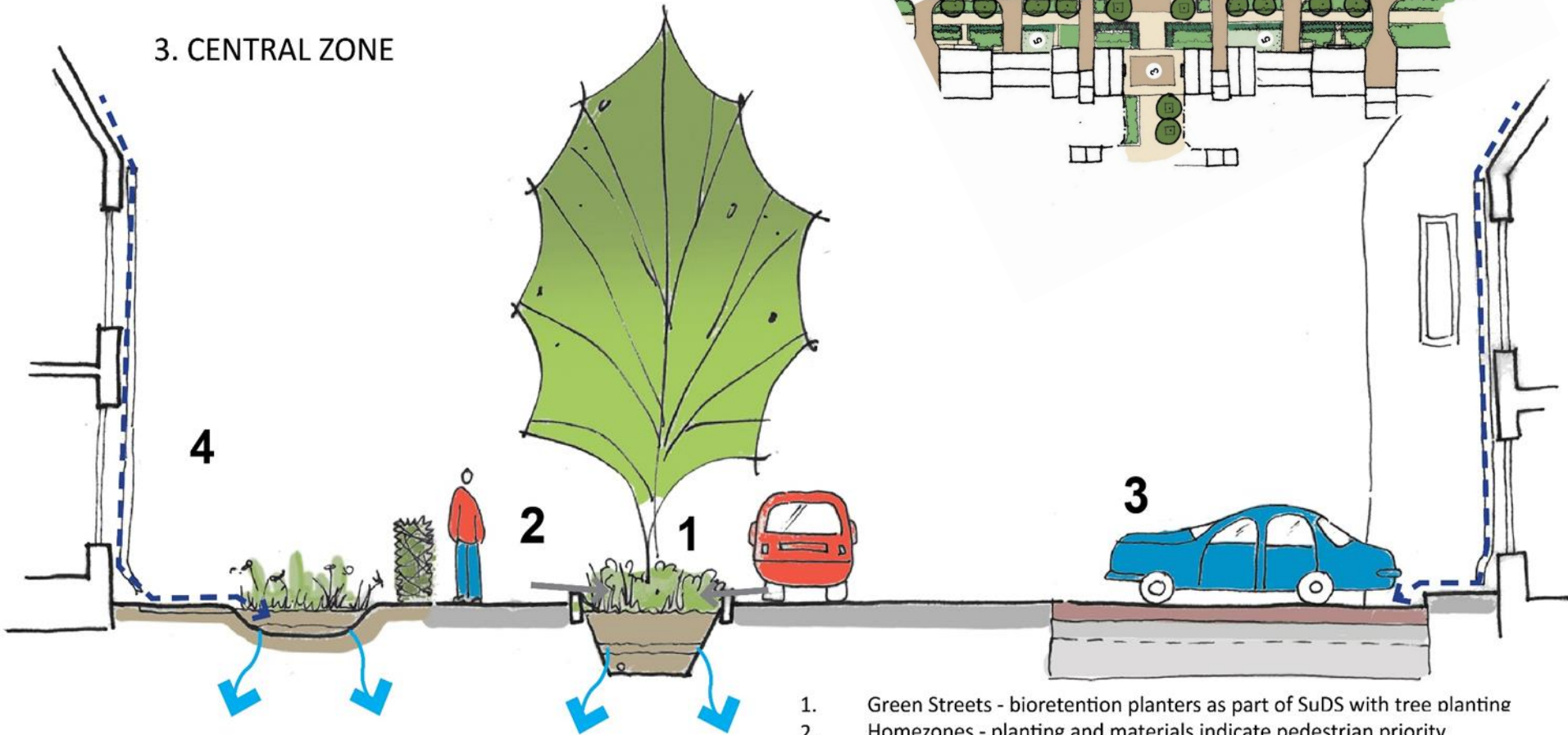
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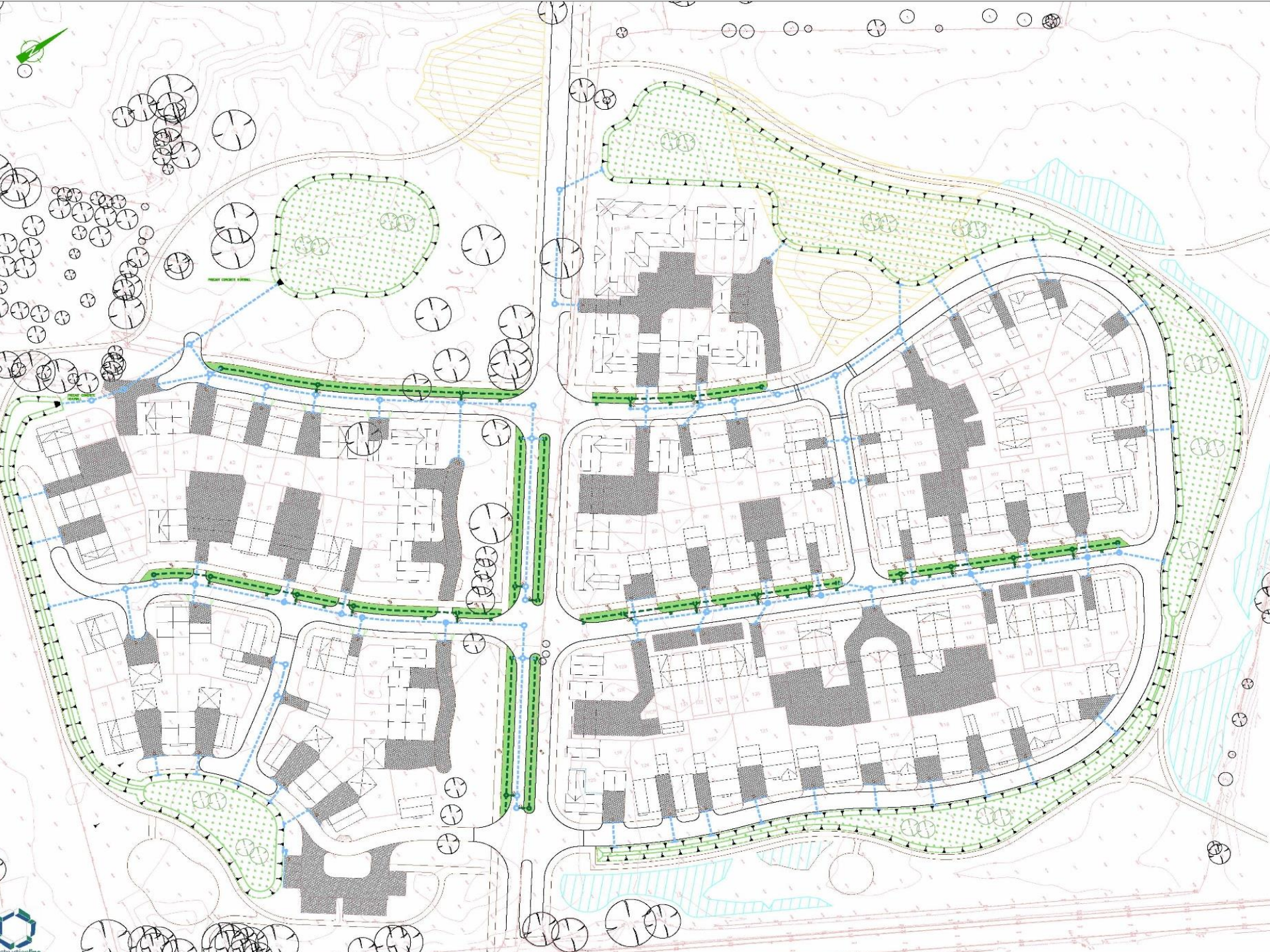
1. Green Streets - bioretention planters as part of SuDS with tree planting
2. Homezones - planting and materials indicate pedestrian priority.
3. Permeable paving to parking area
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-  Swale/infiltration basin
-  Permeable paving
-  Bioretention planter
-  Surface water flows
-  Piped connection between SuDS features
-  Down pipe connection to source control feature
-  Filter strip



- 1: PROPOSED DEVELOPMENT
- 2: BOUNDARY VEGETATION
- 3: PROPOSED TREES
- 4: PEDESTRIAN NETWORK
- 5: PLAY FACILITIES
- 6: VILLAGE GREEN
- 7: EXISTING TREES
- 8: EXISTING LANDSCAPE FEATURES
- 9: ALLOTMENTS- Enclosed
- 10: COMMUNITY BUILDING
- 11: PICNIC AREA
- 12: GRASS PITCHES
- 13: MEADOWS
- 14: OVERFLOW PARKING
- 15: EXISTING WOODLAND/SCRUB PLANTING

Any questions?

